MOSKVITIN, A. I.

Moskvitin, A. I.

"Reciprocating electrical machines." A. I. Moskvitin.
Reviewed by P. A. Fridkin.
Izv. AN SSSR Otd. tekh. nauk No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

MOSKVITIN, A.I.

TOLSTOV, Yu.G., doktor tekhnicheskikh nauk [deceased]; KRUG, K.A., otvetstvennyy redaktor; MOSKVITIN, A.I., professor, otvetstvennyy redaktor; KUDASHEV, A.I., redaktor; ALEKSEYEVA, T.V., tekhnicheskiy redaktor.

[Contact converters] Kontaktnye preobrazovateli. Moskva, Izd-vo Akademii nauk SSSR. 1953. 131 p.

(MLRA 7:9)

1. Chlen-korrespondent Akademii nauk SSSR. (for Krug)
    (Electric current converters)

MOSKVITIN, A. I.; VENIKOV, V. A. (Dr.);

Scientific Research Conducted by the Academy of Science USSR and Leading Institu-
tions of higher Learning on the Problems of Long-distance Transmission," paper
presented at the Session of Commission for Long Distance Power Transmission in
USSR--Moscow, Vestnik Akademii Nauk USSR, July 1954.

Representatives from scientific establishments of the AS USSR, the academies of
the union republics, scientific research and planning organizations of the Ministry
of Electric Power Stations and the Electrical Industry, and leading electrical engi-
neering and polytechnic institutes convened in Moscow, for session of the Commis-
sion for Transmission of Electric Power Over Long Distances 8-10 March 1954.

DIMITRADZE, Apollon Samsonovich, professor, doktor tekhnicheskikh nauk;
MOSKVITIN, A.I., doktor tekhnicheskikh nauk, professor, retsenzent;
STEPANOV, A.D., dotsent, kandidat tekhnicheskikh nauk, retsenzent;
MELYEV, A.S., inzhener, redaktor; VOSKRESENSKIY, N.N., redaktor;
SALAZKOV, N.P., tekhnicheskiy redaktor; SHIKIN, S.T., tekhnicheskiy
redaktor

[Theory of electric transmission in locomotives; principles of a
general theory of electric transmission of constant power] Teoriia
elektroperedachi lokomotivov; osnovy obshchei teorii raboty elektri-
cheskoi peredachi postoiannoi moshchnosti. Moskva, Gos.nauchno-
tekhn.izd-vo mashinostroit.lit-ry, 1957. 79 p.   (MLRA 10:9)
     (Locomotives)

MOSKVITIN, ANATOLII IVANOVICH

PHASE I BOOK EXPLOITATION   425

Bel'kind, Lev Davidovich; Grudinskiy, Petr Grigor'yevich and
  Moskvitin, Anatoliy Ivanovich

Klavdiy Ippolitovich Shenfer. Moscow, Gosenergoizdat, 1957. 75 p.
  (Series: Deyateli energeticheskoy tekhniki; biograficheskaya
  seriya, vyp. 20) 2,700 copies printed.

Ed.: Antik, I. V.; Tech. Ed.: Voronin, K. P.

PURPOSE: This monograph is intended for wide circles of readers
          interested in the history of Russian science, for physicists,
          electrical engineers and researchers studying the history
          of electrical engineering in Russia.

COVERAGE: The monograph describes the life of K. I. Shenfer who is
          said to be one of the creators of the Soviet school of

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Klavdiy Ippolitovich Shenfer (Cont.)   425

electromechanics. His activities as electrical engineer, inventor
and educator are reviewed. The section "Life and activities of
K. I. Shenfer" was compiled by Professors L.D. Bel'kind,
P. G. Grudinskiy and A.I. Moskvitin. The section "Scientific
Research Work and the Inventions of Academician K. I. Shenfer" was
written by Professor A.I. Moskvitin. At the end of the book there
is a list of K. I. Shenfer's works and an appendix listing the
patents which he received in the USSR for his inventions. No
personalities are mentioned. There are no references.

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CONTENTS:

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Klavdiy Ippolitovich Shenfer (Cont.)   425

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Klavdiy Ippolitovich Shenfer (Cont.)   425

Bibliography of K. I. Shenfer's works

Appendix   69

Main patents and author's certificates issued to K.I. Shenfer
in the USSR for his inventions

AVAILABLE: Library of Congress   74

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JJP/jmr
7-14-58

Moskvitin, A.I.

14(6),8(6) P.10

PHASE I BOOK EXPLOITATION   SOV/3071

Akademiya nauk SSSR. Energeticheskiy institut

Elektroenergetika, vyp. 1 (Electric Power Engineering, Nr 1) Moscow,
Izd-vo AN SSSR, 1959. 159 p. Errata slip inserted. 2,800 copies
printed.

Eds. of Publishing House: P. F. Ogarkov and Ye. N. Grigor'yev; Tech.
Ed.: Ye. V. Zelenkova; Editorial Board: Yu. G. Tolstov, Doctor
of Technical Sciences (Resp. Ed.), I. M. Markovich, Doctor of
Technical Sciences, I. S. Stekol'nikov, Doctor of Technical Sci-
ences, P. I. Zubkov, Candidate of Technical Sciences,
G. V. Mikhnevich, Candidate of Technical Sciences, V. I. Levitov,
Candidate of Technical Sciences, and N. D. Bol'shov (Secretary)

PURPOSE: This collection of articles is intended for specialists
in the various fields of electric power engineering treated in it.

COVERAGE: The first issue of the collection of articles,
"Elektroenergetika", appeared in April 1959. It is published by
ENIN imeni G. M. Krzhizhanovskiy of the Academy of Sciences, USSR.
The articles in this issue are based on research and work by the

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authors under the auspices of ENIN. The articles are on a high
theoretical and technical level and represent original contribu-
tions to various present-day problems in electrical engineering.
References are given after most of the articles.

TABLE OF CONTENTS:

Tolstov, Yu. G., and A. L. Sarkisov. Arc Rectifiers With Increased
Pressure

3

In 1954 and 1955 several theoretical and experimental invest-
igations were made at the Institute in order to determine the
possibility of using hot-cathode arc rectifiers with increased
pressure for long-distance d-c power transmission. The invest-
igations were aimed at improving the parameters of E. Marx arc
rectifiers produced in Germany before and during the war. The
authors conclude that, despite improvements, modern mercury arc
rectifiers are superior to the hot-cathode ones and recommend
use of the former in long-distance d-c power transmission. The
following organizations and scientific personnel participated
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in the investigations together with ENIN: IMYeT - D.A. Petrov,
K. M. Korol'kov, R. L. Petrusevich; MGU - N. A. Kaptsov,
M. Z. Khokhlov and the welding section; Academy of Sciences,
USSR - N. N. Rykalin, Corresponding Member of the Academy,
I. D. Kulagin, A. I. Pugin and others. There are 4 references:
3 Soviet and 1 German.

Neyman, L. R., Ye. G. Burtseva, and S. R. Cliternik. Model of D-C
Electric Power Transmission System of the Power Engineering Lab-
oratory imeni M. A. Shatelen, ENIN AN SSSR   12

   This d-c high-voltage network analyzer (model) was built at the
   laboratory in 1952/53. The following investigations are being
   conducted with it: increase of reliability and stability of
   network operation and effect of d-c electric power transmission
   on the static and dynamic stability of an a-c power system.
   The investigations are being conducted under the supervision
   of L. R. Neyman, Corresponding Member of the Academy of Sciences,
   USSR. There are no references.

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Electric Power Engineering, Nr 1   SOV/3071

Kovalev, F. I., and G. P. Mostkova. High-Frequency Oscillations in
Rectifying Units With Saturable Reactors   20

    As a result of investigations conducted at the NIIPT, ENIN,
    and other organizations, methods were found for damping
    complex oscillations generated in converter installations.
    This was accomplished by switching a bypass circuit consisting
    of capacitances and resistances connected in series into the
    rectifier and power transformer phases. There are 6 refer-
    ences: 2 Soviet, 2 English, 1 German and 1 Italian.

Pyrkov, V. V. Problem of Designing Saturable Reactors for Low-
Voltage Contact Rectifiers   31

    The author considers the problem of designing saturable re-
    actors for d-c low-voltage supply for electrochemical and
    electrometallurgical industries, which has not been adequately
    treated in the current literature. He aims at presenting a
    systematic survey of existing methods and suggests certain
    concrete recommendations on methods of calculating saturable
    reactors. There are 10 references: 2 Soviet, 6 German and
    2 English.
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Utevskiy, A. M. Theory and Method of Designing Voltage-Doubling
Rectifiers With a Capacitive Filter

44

The method suggested by the author was tested experimentally
and found to satisfy engineering requirements. There are
11 references: 7 Soviet, 2 German and 2 English.

Gorelkin, N. V., Sh. I. Lutidze and P. M. Shpileva. Electronic
Excitation of Synchronous Generators Using a Six-phase Circuit
With a Buffer Rectifier

54

The authors credit Academician K. I. Shenfer with the first
studies in 1933 on the problems of electronic excitation.
Recent theoretical investigations on this subject were con-
ducted in the USSR by D. A. Zavalishin, I. A. Glebov,
Ye. L. Ettinger and by the electromechanics laboratory of
ENIN. The authors made a number of investigations of elec-
tronic excitation on laboratory models using different cir-
cuit combinations. All of the methods using buffer rectifiers
were introduced by the laboratory. The methods and results of

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investigations are presented. There are 3 references, all Soviet.

Lutidze, Sh. I. Analysis of an Electronic Exciter Connected Through a Three-phase Circuit With a Buffer Rectifier.   67

The author investigates simple and reliable three-phase electronic exciter systems with buffer rectifiers and applies the method of symmetrical components to obtain expressions for currents and voltages. This article is a continuation of the previous one. There are 3 references, all Soviet.

Gorelkin, N. V and P. M. Shpileva. Application of Germanium Rectifiers in Excitation Circuits of Synchronous Generators   93

The electromechanics laboratory of ENIN developed, in 1956, an experimental installation of a synchronous generator equipped with a rotating germanium rectifier in a bridge circuit with germanium diodes of the DGTs-24 type. Results of experiments are presented. There are 5 references: 4

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   Soviet and 1 English.

Kozlovskiy, G. F., and G. V. Mikhnevich. Equivalent Circuit of
Station Generators Equipped With Strong-Action Regulators   98

   The author presents a method of representing a group of n
   station generators by two identical generators equivalent to
   the group in their static characteristics. The method is used
   in studying static stability and the nature of transients of
   station generators. There are 4 references, all Soviet.

Gorushkin, V. I. Application of the Method of Successive Approxi-
mations for Calculating Complex Electrical Networks   105

   There are 7 references, all Soviet.

Gol'tsov, N. A. Transformation of a Single-phase System Into a
Three-phase Using Static Devices According to a Scheme Developed
by P. A. Kalantarov and L. A. Tseytlin
                                                                  114

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Electric Power Engineering, Nr 1   SOV/3071

   The method used consists in employing capacitors in the
circuit. The author derives formulas expressing the trans-
formation. There are 3 references, all Soviet.

Aronzon, N. Z. Properties of a Certain Type of Oscillatory
Circuit
                                                          117

   No references are given.

Gol'tsov, N. A. Application of a Series of Functions for the
Derivation of Formulas of Various Numerical Methods for Solving
Ordinary Differential Equations
                                                          120

   There are 3 references, all Soviet.

Stekol'nikov, I. S. The Mechanism of Discharge in Large Gap
Spacings for Alternating Current
                                                          127

   The author, a well-known specialist in problems of lightning
protection, investigated the mechanism of discharge at in-
dustrial frequency and at various spacings of the air gap,
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all of them having practical applications. On the basis of
several experiments, using various types of circuits and
varying the parameters, the author concludes that the elec-
tric strength of a given spacing is not subject to sub-
stantial change when circuit parameters are varied. There
are 8 references: 2 Soviet, 4 English and 2 German.

Pomiluyko, N. S. Electronic Electrothermic Anemometer With
Semiconductor Pickups   142

Experimental investigation conducted at the electromechanics
laboratory of ENIN on aerodynamics and heat transfer using
turbogenerator models necessitated further development of
methods of measuring temperatures and velocities in rotor
and stator channels. To overcome difficulties encountered
when using conventional methods of measurement (Prandtl tubes)
the author developed semiconductor ball pickups and an elec-
trothermic anemometer. He was assisted in this work by
A. P. Pereleshina, Candidate of Technical Sciences, and
mechanics I. A. Krupenin, B. I. Postnikov, and V. K. Semenov.
Card 9/11

Electric Power Engineering, Nr 1   SOV/3071

   No references are given.

Sarkisov, A. L.,Yu. L. Belous. Method of Determining Dynamic
Voltampere Characteristics of Semiconductor Rectifiers on an
Oscillograph   148

   The authors describe a method of obtaining the real opera-
   tional (dynamic) voltampere characteristic directly on the
   screen of a cathode-ray oscillograph by supplying, simultan-
   eously on the horizontal and vertical pairs of the oscillo-
   graph, plate voltages proportional to the forward current and
   forward voltage (during the conductive part of the period)
   and to the reverse current and reverse voltage (during the
   non-conductive part of the period). The results of tests are
   presented. No references are given.

Moskvitin, A. I. The Most Advantageous Copper Space Factor in
Direct-Cooling of Electric Machines   153

   The author attempts to determine an optimum copper space
   factor at which it is possible to increase the current load
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SOV/24-59-4-6/33

AUTHORS: Moskvitin, A. I. and Rassulov, A. M. (Moscow)

TITLE: Concerning Heat Transfer in the Hydrogen Cooling System
              of Turbo-alternators

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
              nauk, Energetika i avtomatika, 1959, Nr 4, pp 43 - 48 (USSR)

ABSTRACT: In modern turbo-alternators gas coolers are used to cool
              the circulating hydrogen; these coolers are very big and
              can have a considerable influence on the design and overall
              dimensions of the alternators. It is important to be able
              to make these gas coolers small. However, heat transfer
              and the aerodynamic resistance of bundles of tubes with
              wire ribbing has been little studied and published data
              relates only to tests in air. In the summer of 1958, the
              Energeticheskiy institut AN SSSR (Power Institute of the
              Ac.Sc.USSR) together with the "Elektrosila" Works made an
              an experimental study at various hydrogen pressures of heat
              transfer and resistance to flow of gas coolers with wire
              ribbing as used in turbo-alternators. As the tube bundles
Card1/6   were of full size and the cooling medium was the same as

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Concerning Heat Transfer in the Hydrogen Cooling System of
Turbo-alternators

in operation it was possible to determine the heat-transfer
coefficient and resistance at various hydrogen pressures
and also to obtain generalised criterial relationships.
The tests were made in special equipment designed for
testing parts of large machines in an atmosphere of
hydrogen at pressures of 1 to 10 atm; it is a cylindrical
chamber 5 300 mm long and 1 050 mm diameter. The chamber
contains a wind tunnel with fans forming a closed circuit
in which the gas can be circulated in amounts up to

$1.5 \text{ m}^3/\text{sec}$. Appropriate control measurement devices were
provided. The tests were made at various hydrogen pressures
from 1.2 to 7.5 atm and for a wide range of gas speeds from
2 to 10 m/sec. The gas temperature at inlet to the coolers
reached $50 - 60\ ^{\circ}\text{C}$ and the cooling-water temperature was
around $20\ ^{\circ}\text{C}$. During the tests the thermal loading of the
gas cooler corresponded to practical operating conditions
and was 800 - 1 200 kcal/h per metre run of tube. Hydrogen
of 97.5 - 98.5% purity was used as in practical machines.

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Concerning Heat Transfer in the Hydrogen Cooling System of
Turbo-alternators

Heat transfer from a ribbed gas cooler is given by Formula
(1) and the efficiency of the ribbing is given by Formula (2).
Using these formulae, by experimental determinations of the
amount of heat transferred and the appropriate temperature
drop it is easy to determine the heat-transfer coefficients
for the ribbed surface. On going over from air to hydrogen
cooling at a pressure of 4 atm, the effectiveness of using
the gas cooler is reduced by about 20% and, therefore, with
hydrogen cooling at 4 atm, it is advisable to use wire
ribbing with a larger wire diameter and smaller loop height
or to use solid fins. The criterial heat-transfer relation-
ship of the gas cooler plotted in Figure 1 and given by
expression (4) was plotted from experimental data for
hydrogen pressures from 1.2 to 7.5 atm.
The aerdynamic resistance of the tube bundle is then
considered. The criterial equation for the resistance is
of the form of expression (7). On working out the
experimental data, it is found that the resistance

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Concerning Heat Transfer in the Hydrogen Cooling System of
Turbo-alternators

coefficient drops as the hydrogen pressure is increased,
for instance, on raising the hydrogen pressure from 1.2
to 4.0 atm, the resistance coefficient drops by 15-20%
for a rate of flow of 3.0 m/sec. Figure 2 shows a graph
of the criterial relationship between the resistance
coefficient obtained on tests for several hydrogen pressures
and for air. It is found that whilst   air increase in
the Reynolds number reduces the resistance coefficient
only slightly, the reduction is greater for hydrogen and
increases as the pressure is dropped. On the basis of
the test results, Eq (9) is recommended to determine the
resistance coefficient of the wire ribbed gas cooler
considered, at a pressure of 4 atm. The tests also showed
that on going over from air to hydrogen cooling at a
pressure of 4 atm, the resistance of the gas cooler is
more than halved.
The experimental separation of the various components of
the thermal resistance of the gas cooler is then
Card 4/6   considered. Since the tests were made over a wide range of

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Concerning Heat Transfer in the Hydrogen Cooling System of
Turbo-alternators

speeds and gas pressures and of water speeds in the tubes,
it was possible to resolve the thermal resistance of the
gas cooler into its component parts and this is, of course,
a major object of investigations of heat-exchange equipment.
Of course, the resistances of the different parts are inter-
related so that the separation is necessarily somewhat
arbitrary.
Figure 3 gives graphs of the total specific thermal
resistance of the gas cooler as a function of the reciprocal
of the water speed for tests in hydrogen and in air and
for various gas speeds and pressures. The relationship is
linear and the method of using these results to resolve
the heat losses into various components is explained.
Block diagrams of the various components of resistance as
percentage of the total resistance are plotted in Figure 4
and it will be seen that for air at low speeds (Figure 4a -
lefthand column) the main resistance (83%) is due to heat
transfer from the gas to the ribbing. For hydrogen at high

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Concerning Heat Transfer in the Hydrogen Cooling System of
Turbo-alternators

speeds and pressures   (pv = 33, right-hand column of
Figure 4a) this resistance drops to 25% but the relative
proportion due to the resistance of the metal increases
considerably from 8% in air to 50% in hydrogen. Con-
sequently, in this case, it is best to make the ribbing
narrower but of thicker wire. Formulae (10)-(12) may
be used for approximate recalculation of the test results
for the given gas cooler from air to hydrogen and thus
to obtain a generalised characteristic for the gas cooler.
Such a generalised characteristic is given in Figure 5 for
the thermal resistance relating to a hydrogen pressure of
4 atm and gas speed of 5 m/sec constructed from the test
results given in Figure 3 for hydrogen and air.
There are 5 figures and 5 Soviet references.

SUBMITTED: March 10, 1959

Card 6/6

MIKHNEVICH, Gennadiy Viktorovich; KOZLOVSKIY, Genrikh Frantsevich;
MOSKVITIN, A.I., otv.red.; GRIGOR'YEV, Ya.N., red.izd-va;
ASTAF'YEVA, G.A., tekhn.red.

[Quality end stability of transient processes in the excitation
control system of a multiunit electric power plant] Ustoichivost'
i kachestvo perekhodnykh protsessov sistemy regulirovaniia voz-
buzhdeniia mnogoagregatnoi elektrostantsii. Moskva, Izd-vo Akad.
nauk SSSR, 1960.   97 p.   (MIRA 13:8)
                     (Electric power plants)

MOSKVITIN, Anatoliy Ivanovich; ORPIK, S.L., red.izd-va; ASTAF'YEVA,
G.A., tekhn.red.;

[Direct cooling of electrical machinery] Neposredstvennoe
okhlazhdenie elektricheskikh mashin. Moskva, Izd-vo Akad.nauk
SSSR, 1962. 223 p.   (MIRA 15:2)
        (Electric machinery--Cooling)

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nauk, prof., otv. red.; GRIGOR'YEV, Ye.N., red.izd-va;
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[Synthesis of the structure of automatic excitation
control systems of synchronous machines] Sintez struktury
sistemy avtomaticheskogo regulirovaniia vozbuzhdeniia sin-
khronnykh mashin. Moskva, Izd-vo "Nauka," 1964. 231 p.
                                        (MIRA 17:3)

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turbogenerator with diagonal grooves. Elektrichestvo no.7:83-85 Jl
'64.
(MIRA 17:11)

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MOIP. Otd.geol. 39 no.5:101-111 S-0 '64.   (MIRA 18:2)

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[Pleistocene in the European part of the U.S.S.R.; critical review of published data.] Pleistotsen Evropeiskoi chasti SSSR; kriticheskii obzor literaturnykh dannykh. Moskva, Nauka, 1965. 179 p. (Akademiia nauk SSSR. Geologicheskii institut. Trudy, no. 123). (MIRA 18:12)

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Hörmating, a section of the Upper Pleistocene within the Inn lobe of the "Main Würmian." Dokl. AN SSSR 166 no.3:685-687
(MIRA 19:1)
Ja 66.

1. Submitted August 11, 1965. Submitted August 11, 1965.

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Mechanical equipment and fittings in water supply lines. Moskva, Gos. izd-vo stroit.
lit-ry, 1949. 263 p. (50-38800)

TD481.M6

MOSKVITIN, A.S., inzhener.

[Water supply line machinery and equipment] Mekhanicheskoe oborudovanie i
armatura vodoprovodov. Izd.2., dop. i perer. Moskva, Gos.izd-vo lit-ry po
stroitel'stvu i arkhitekture, 1953. 410 p.   (MLRA 6:8)
                                         (Water--Supply engineering)

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Hydraulic system of automatic control for rapid filter systems.
Vod. i san. tekh. no.7:4-7 Jl '56.   (MLRA 9:10)

(Filters and filtration) (Automatic control)

MOSKVITIN, Aleksandr Ivanovich; TUGOLESOV, D.A.,kand.geologo-mineral.
        nauk, otvetstvennyy red.; VOLYNSKAYA, V.S.,red.izd-va; GUSEVA,
        I.N., tekhn.red.

[Quaternary sediments and formation of the middle Volga Valley]
Chetvertichnye otlozheniia i istoriia formirovaniia doliny r.
Volgi v ee srednem techenii. Moskva, Izd-vo Akad. nauk SSSR.
1958. 208p. (Akademiia nauk SSSR. Geologicheskii institut.
Trudy, no.12)   (MIRA 11:12)
              (Volga Valley—Geology, Stratigraphic)

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VANIN, V.I., inzh., nauchnyy red.; NINEMYAGI, D.K., red.; GILENSON,
P.G., tekhn.red.

[Manual on pipes, fittings, and equipment for water-supply and
sewerage installations] Spravochnik po trubam, armature i oboru-
dovaniiu vodoprovodno-kanalizatsionnykh sooruzhenii. Moskva,
Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1958.
473 p.   (MIRA 12:4)

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    NEMIROVSKIY, D.B. [deceased]; RUBINSHTEYN, S.L.;
    POPOV, V.V.; KHASKIN, S.A.

"Handbook on water supply and sewerage." Reviewed by
A.I. Balashov and others. Vod. & san. tekh. no.12:32-34
D '62.   (MIRA 15:12)
                        (Water supply)
                        (Sewerage)

MOSKVITIN, A.S.; GOL'DENBAUM, YA.P.

Breaking petroleum trap emulsions by separation. Khim. i tekh.
topl. i masel 9 no. 6:39-40 Je'64   (MIRA 17:7)

1. Gosudarstvennyy institut po proyektirovaniyu spetsial'nykh
sooruzheniy promyshlennogo stroitel'stva.

L 19032-65   EWT(1)/EWA(h)   Pm-4/Peb   RAEM(a)/SSD/ASD(a)-5/AFWL/AFETR/ESD(c)/ ESD(gs)

ACCESSION NR: AP5000450   S/0109/64/009/012/2105/2112

AUTHOR: Moskvitin, L. L.; Naumov, Yu. Ye.   /3

TITLE: Saturation of quantum paramagnetic amplifiers with high input signals

SOURCE: Radiotekhnika i elektronika, v. 9, no. 12, 1964, 2105-2112

TOPIC TAGS: quantum paramagnetic amplifier, microwave amplifier

ABSTRACT: An error is admitted in formulas 8, 10, and 12 in N. V. Karlov's, et al., article (Rad. i elektronika, 1961, 6, 3, 410). The saturation of various quantum paramagnetic amplifiers (QPA) excited by a continuous signal is theoretically investigated; formulas are developed for the saturation power of TW QPA and of reflex-type regenerative amplifiers. The concept of "saturation power" is not entirely adequate for describing the behavior of QPA excited by strong signals; this concept does not define the upper limit of the QPA dynamic range. Hence, to assess linearity of QPA, a demodulation ratio of the input

Card 1/2

L 19032-65

ACCESSION NR: AP5000450

signal which characterizes information distortion is suggested. Relations between the saturation and demodulation for the TW and reflex QPA types are presented (Fig 3) and discussed. Orig. art. has: 3 figures and 33 formulas.

ASSOCIATION: none

SUBMITTED: 20Jun63   ENCL: 00

SUB CODE: EC   NO REF SOV: 001   OTHER: 005

Card 2/2

L 10469-67   EWT(1)

ACC NR: AP60? 023   SOURCE CODE: UR/0109/66/011/009/1589/1592

AUTHOR: Moskvitin, L. L.; Poltoratskiy, B. F.

ORG: none

TITLE: Effect of saturation in quantum paramagnetic amplifiers on their phase characteristics

SOURCE: Radiotekhnika i elektronika, v. 11, no. 9, 1966, 1589-1592

TOPIC TAGS: quantum device, quantum amplifier, paramagnetic amplifier

ABSTRACT: The results are reported of a theoretical investigation of the effect of saturation on phase characteristics in quantum paramagnetic TW amplifiers and resonator reflex-type amplifiers. A relation is found between the amplifier phase shift and its resonance gain, the latter being connected with the input power (see Rad. i elektronika, 1964, 9, 12, 2105). It is found that, with a detuning nearing

Card 1/2   UDC: 621.385.6:621.375

L 10469-67

ACC NR: AP6031023

the transmission band and an input-to-saturation power ratio between −5 and
+30 db, the phase-shift vs. input-power curves for both types of amplifier are
about the same, having a slope of 15−20 mrad/db. For input powers that are
equal to 0.1−1000 saturation power, the overall phase shift may reach 0.8 rad.
For ratios of 15−20 db, the curve slope depends but little on the initial gain; it is
largely determined by the relative detuning of the channel. "In conclusion, the
authors wish to thank N. V. Karlov for his discussions and useful suggestions."
Orig. art. has: 2 figures and 13 formulas.

SUB CODE: 20, 09 / SUBM DATE: 15May65 / ORIG REF: 004 / OTH REF: 001

Card 2/2 egk

MOSKVITIN, N.

Triumph of life. Zdorov'e 3 no.11:21-24 N '57.   (MIRA 10:12)
     (LABOR AND LABORING CLASSES--MEDICAL CARE)

MOSKVITIN, N.

        Successors. Zdorov'e 4 no.10:3-5 O'58   (MIRA 11:11)
            (HYGIENE)

MOSKVITIN, N.

North of Tomsk. Zdorov'e 4 no.11:16-17 N '58.   (MIRA 11:11)
            (Ostiaks)   (Tunguses)

MOSKVITIN, N. (Krasnodarskiy kray)

What people live by. Zdorov'e 5 no.8:23-24 Ag '59.   (MIRA 13:8)
        (LONGEVITY)   (KRASNODAR KRAY—PUBLIC HEALTH)

MOSKVITIN, M. (Rostov-na-Donu)

Man on the way. Zdorov'e 5 no.9:16-17 S '59. (MIRA 12:11)
(ROSTOV-ON-DON--AGRICULTURAL MACHINERY INDUSTRY)

CA

29

Artificial technical leather. N. Minkvitin. Austovo-no-Obnowaya Prom, S. S. S. R. 13, 135 R(11t14). Phys. and mech. properties of leather substitutes prepd. from flax waste and rubber are discussed.

A. A B.

MOSKVITIN, N.I.; GRINBERG, I.F., red.; SMOL'YAKOVA, M.V., tekhn. red.

[Technology of leather substitutes] Tekhnologiia zamenitelei
kozhi. Moskva, Gizlegprom. Vol.3. [Substitutes of the carton
type]Zameniteli tipa kartonov. 1948. 387 p. (MIRA 15:7)
(Leather substitutes)

MOSKVITIN, N. I.

"Investigation of the Phenomena of Adhesion and Gluing (Factors, Specifying the Physico-mechanical Properties of Substitute Leather on a Fibrous Base)." Sub 28 Dec 51, Inst of Physical Chemistry, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

MOSKVITIN, N. I., FUTRAN, M. F., and DERYAGIN, B. V.

"Study of the Adhesion of Surfaces in Liquid Media by the Method of Interlacing
Threads with a view to the Modeling of the Interaction of the Colloid Particles and
the Character of their Surface Solvation (Izucheniye slipaniya poverkhnostey b
zhidkikh sredakh metodom skreshchennykh,h nitey s tsel'yu modelirovaniya vzaimodeystviya
kolloidnykh chastits i kharakteristiki ikh poverkhnostnoy sol'vatatsii) from the book
Trudy of the Third All-Union Conference on Colloid Chemistry, pp. 245-300, Iz AN SSSR,
Moscov, 1956

(Report given at above Conference, Minsk, 21-4 Dec 53)

Deryagin: Cor. Mbr. AS USSR

KOSEVITIN, M.I., FUTRAN, M.F., DERYAGIN, B.V.,

Use of the crossed-thread method for the study of surface sol-
vation of polymers and of their adhesion inliquids and for modeling
colloidal processes. Dokl. AN SSSR 105 no.4:758-761 D '55.

(MLRA 9:3)

1. Chlen-korrespondent AN SSSR (for Deryagin); 2. Institut
fizicheskoy khimii Akademii nauk SSSR.

(Polymers and polymerization) (Adhesion)

S/081/62/000/016/030/043
B168/B186

AUTHOR: Moskvitin, N. I.

TITLE: Electrical relaxation theory of cohesion and adhesion
             (investigation on adhesion and cohesion of polymers)

PERIODICAL: Referativnyy zhurnal.. Khimiya, no. 16, 1962, 526-527,
             abstract 16P115 (In collection: Struzhechn. plity i
             svyazuyushchiye materialy. M., 1961, 173-187)

TEXT: The electrical relaxation theory of the cohesion and adhesion of
bodies was used to explain the phenomena of adhesion and cohesion in
polymeric materials. Since resistance to tearing of multiphase synthetic
polymeric materials depends on the intermolecular and chemical bonds it is
essential to produce chemical or intermolecular bonds of high energy at the
point of contact when sticking bodies together or when manufacturing
synthetic polymeric materials. An improvement in the cohesive effect can
be brought about by varying the two components w_{el} (in the case of tearing
of an adhesive bond) and w_{def} (in the case of tearing of a cohesion bond),
or by using substances which act as a "molecular solder". [Abstracter's
note: Complete translation.]
Card 1/1

MOSKVITIN, Nikolay Ivanovich

[Physical and chemical foundations of the processes of
gluing and adhesion] Fiziko-khimicheskie osnovy protses-
sov skleivaniia i prilipaniia. Moskva, Lesnaia pro-
myshlennost', 1964.   247 p.   (MIRA 19:1)

L 10408-66   EWT(m)/EWP(v)/EWP(j)/T   WW/RM

ACC NR: AM5011711   BOOK EXPLOITATION
                                                                    UR

Moskvitin, Nikolay Ivanovich (Doctor of chemical sciences)

Physicochemical bases of bonding and adhesion processes (Fiziko-khimicheskiy osnovy protsessov skleivaniya i prilipaniya), Moscow, Izd-vo "Lesnaya promyshlennost'", 1964, 247 p. illus., tables, diagm., biblio. 3,900 copies printed.

TOPIC TAGS: adhesion, cohesion, chemical engineering, macromolecular chemistry, physicochemical properties, synthetic polymer, adhesive bonding

PURPOSE AND COVERAGE: This monograph is devoted to the problems of adhesion and cohesion of substances (mainly polymers). The purpose of the book is to provide a theoretical basis for cohesion and adhesion and to demonstrate the mechanism as well as the nature of these phenomena. The author attempts to demonstrate that a knowledge of the regularities of cohesion and adhesion processes will permit a correct evaluation of the importance of synthetic polymer materials. The study of the physico-mechanical properties of the latter is closely connected with the perception of the mechanism of polymer adhesion and cohesion. Special attention is paid to the tech-nology of multiphase fibrous materials, mainly high molecular weight substances. In the technology of these materials the adhesion and cohesion phenomena are mostly fully and diversely represented. The discussion includes the adhesion of dispersed and colloidal particles, coagulation processes, cohesion of unlike substances, and phenomena connected with the film and structure formation of adhesives. /6

Card 1/2

L 10408-66

ACC NR: AM5011711

3

TABLE OF CONTENTS [abridged]:

Introduction. The part played by adhesion and bonding phenomena in various pro-
    duction processes -- 3
Ch. I. Methods for adhesion, autohesion and cohesion determination -- 6
Ch. II. Adhesion theory -- 51
Ch. III. Cohesion of high polymer fibers in aqueous media (adhesion and auto-
    hesion -- 135
Ch. IV. Adhesion of ground fibers -- 162
Ch. V. Sizing of fiber suspensions with hydrophobic substances -- 197
Bibliography -- 246

SUBMITTED: 03Nov64

SUB CODE: GC, MT

NO REF SOV: 058

OTHER: 009

Card 2/2

AUTHORS: Batrukova, M. G., Moskvitin, N. N., Sarakhov, A. I.   SOV/32-24-9-37/53

TITLE: A Laboratory Thermostat for Temperatures Ranging From +60° to
             -40° (Laboratornyy termostat dlya temperatur ot +60 do -40°)

ABSTRACT: A number of thermostats are produced for the stabilization of
             temperature values above the value of tap water, but none are
             produced for temperatures below this value. In the literature
             (Ref 1), several cryostats are described, all of which, however,
             have a small volume. The thermostat described in the present
             case has a volume of about 1,5 l. The design is based on the
             thermostat of the type TC-15, combined with the cryostat proposed
             by G. G. Muttik. A diagram of the thermostat is given. In in-
             vestigations in the field of temperatures above 0°C, the device
             works like the thermostat TC-15 with water cooling. In experiments
             at temperatures below that of cooling water, a freezing mixture,
             such as acetone-fast carbon dioxide, is used. The temperature
             could be maintained with an accuracy of ± 0,005° using no
             freezing mixture, and an accuracy of only ± 0,025-0,035° when
             freezing mixture was used.

Card 1/2

Inst. Physic. Chem., AS USSR

5(4)

AUTHORS: Moskvitin, N. N., Dubinin, M. M.,   SOV/20-122-5-26/56
             Academician, Sarakhov, A. I.

TITLE: The Adsorption of Water Vapors on Crystalline Powders
             of Halogenides of Silver and Lead (Adsorbtsiya parov
             vody na kristallicheskikh poroshkakh galogenidov serebra
             i svintsa)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5,
             pp 840 - 843 (USSR)

ABSTRACT: The present paper compares the isothermal lines of
             adsorption on the typical representatives of the
             crystal groups mentioned in the title for a sufficiently
             wide temperature interval. The isothermal lines
             of the adsorption of water vapors were investigated
             by means of quartz microscales. Preparation of the
             adsorbents for the experiments is discussed in short.
             Work with AgJ and AgCl was carried out with red light.
             The weight of the adsorbents amounted to from 0.75-0.8 g.
             The isothermal lines of the adsorption of water were
Card 1/4   measured at 20, 10, 0, and -20° on the crystals of AgJ

The Adsorption of Water Vapors on Crystalline Powders   SOV/2c-122-5-26/56
of Halogenides of Silver and Lead

and AgCl. All isothermal lines found in this manner
(type II according to the classification by Brunauer)
are reversible in the entire interval of ... cm
pressures and are fully reproducible at all temperatures.
This applies no matter whether the sample had been
heated before measurement or not. The heat effect
of the adsorption of water has a value similar to that
of condensation heat. The isothermal lines of the
adsorption of water on AgJ and AgCl are described
in the range of relative pressures of 0.05-0.4 by
the equation of polymolecular adsorption given by
Brunauer, Emmet, and Teller. Next, some characteristic
features of the adsorption of water on silver iodide
and silver chloride are described. Particular interest
is caused by the problem of the phase state of the
water adsorbed on AgJ and AgCl at temperatures below 0°.
Two diagrams show the isotheric lines for various values
of adsorption on AgJ and AgCl; they were calculated
from the isothermal lines for the temperatures 20, 10, 0

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The Adsorption of Water Vapors on Crystalline Powders   S.W/29-122-5-26/56
of Halogerides of Silver and Lead

and -20°. All isosteric lines for AgJ consist
of 2 linear parts, which intersect in a temperature
interval near 0°. The salient points of these curves
correspond to the melting of the ion. From the
difference between the angles of inclination the value
1450 kcal/mol is obtained for the heat effect of
the transition. The isosteric lines of the adsorption
of water vapors on AgCl have no salient point. There-
fore, the heat effect of the adsorption at positive
and negative temperatures is practically equal to
the heat of condensation. In the sorption of water
on PbJ$_2$ a non-equilibrium system vapor adsorbent
was in all cases concerned. There are 4 figures
and 13 references, 4 of which are Soviet.

ASSOCIATION: Institut fiziceskoy khimii Akademii nauk SSSR (In-
stitute of Physical Chemistry of the Academy of Sciences USSR)

Card 3/3

5.4100

77099
SOV/62-59-12-

AUTHORS: Moskvitin, N. N., Dubinin, M. M., Sarakhov, A. I.

TITLE: Study of Adsorption of Water Vapors on Ionic Crystals. Communication I. Methods and Results of the Study of Water Vapor Adsorption on the Crystals of Silver Iodide and Chloride

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 12, pp 2080-2087 (USSR)

ABSTRACT: The authors studied isotherms of adsorption and de-
sorption of water vapor on crystals of silver chloride
and iodide (which can be used as active centers in
cloud seeding) for the temperature interval (to
-20°). Bering and Serpinskiy microbalance [P. P.
Bering, V. V. Serpinskiy, Doklady Akad. nauk SSSR,
94, Nr 3, 497 (1954)] (sensitivity $\pm 2.5 \cdot 10^{-7}$ g)
provided with a special adjustment to eliminate
electrostatic effects [A. I. Sarakhov, Doklady
Akad. nauk SSSR, 112, Nr 3, 464 (1957)], was used.
It allowed one to measure adsorption on 0.7-0.8 g

Card 1/7

Study of Adsorption of Water Vapors on Ionic   77059
Crystals. Communication I. Methods and Results   SOV/62-59-1-1-5
of the Study of Water Vapor Adsorption on the
Crystals of Silver Iodide and Chloride

samples of adsorbents with the specific surface of
$0.015 \ m^2/g$. Every sample was preheated on the balance
pan at 110-120° for 8-10 hr to desorb the substances
adsorbed from the air. All manipulations of silver
halides were performed under red light. The obtained
isotherms are all of type II of the Brunauer classi-
fication (Figs. 1 and 2 show the adsorption isotherms
for AgI). The adsorption isotherms for both AgI and
AgCl are reversible in the whole interval of measured
relative pressures, except for the isotherms at -20°,
which are reversible only up to the pressure of vapor
saturation at that temperature, i. e., 0.77 mm. Above
that pressure, desorption points lie on the curve
which is above the adsorption curve, both curves forming
a hysteresis loop. Values for specific surface (S)
of the powders and for the volume of monomolecular
layers (a_m) were calculated from the corrected

Card 2/7   isotherms (curves 2) for 20°, which were calculated
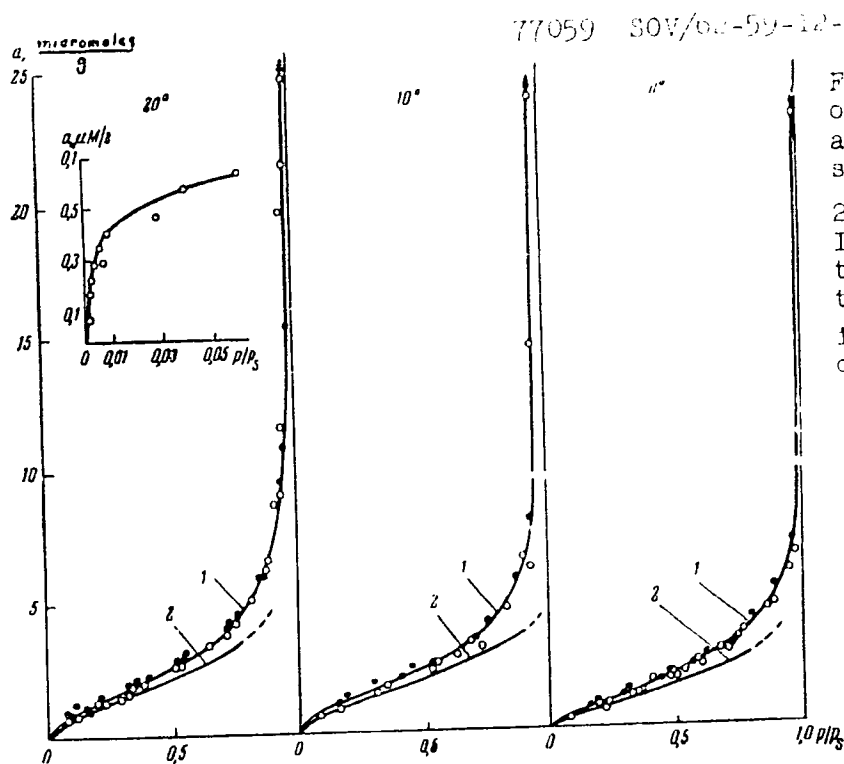
77059   SOV/64-59-12-3/41

Fig. 1. Isotherms of Water vapor adsorption on silver iodide at 20, 10, and °C. In the upper left the beginning section of the 20° isotherm is shown on a large scale.
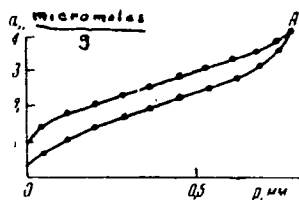
77059   SOV/62-59-12-3/43

Fig. 2. Isotherm of water vapor
adsorption on the crystals of silver
Iodide at -20°.

from the linear equation of the multimolecular
adsorption theory. For AgCl, $a_m = 0.54 \mu$ moles/g,
$S = 0.08$ m^2/g; for AgI, $a_m = 1.32 \mu$ moles/g, $S = 0.2$
m^2/g. Adsorption isoteres of AgI build for the
values of a (a = adsorption) from 1.5 to 3.0 μ moles/
/g (see Fig. 5), and show an inflection at 0°, in-
dicating phase transition at that temperature. The
difference in slopes of both linear sections of the
curves determines heats of transition (fusion of ice),

Card 4/7

Study of Adsorption of Water Vapors on Ionic   77059
Crystals. Communication I. Methods and Results   SOV/62-59-12-3/43
of the Study of Water Vapor Adsorption on the
Crystals of Silver Iodide and Chloride

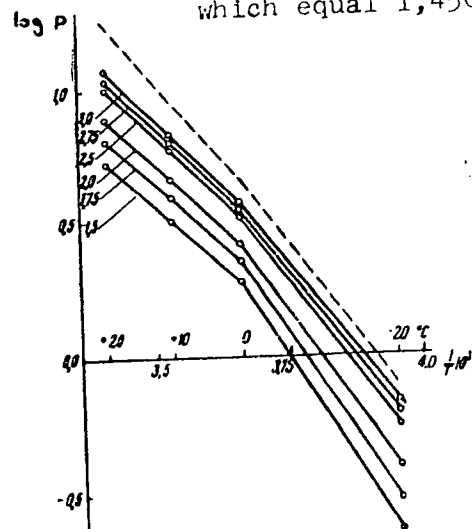which equal 1,450 $\frac{cal}{mole}$.

·Fig. 5. Isosteres of water vapor
adsorption on silver iodide in
the temperature interval (20) —
(-20°).

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Study of Adsorption of Water Vapors on Ionic   77059
Crystals. Communication I. Methods and Results   SOV/62-59-12-3/43
of the Study of Water Vapor Adsorption on the
Crystals of Silver Iodide and Chloride

Comparison of the isosteres shows that there is no
increase of the heat of transition with increasing
value of a, indicating that the phase transition
does not take place in the total mass of the adsorbed
water, but only in the upper adsorption layer.
Adsorption isosteres for AgCl do not have this inflec-
tion, indicating that all the water, adsorbed on the
crystals of AgCl at $-20°$, is in a supercooled state.
This difference--the existence of phase transition
in the water adsorbed or AgI, and its absence in
water on AgCl--can be connected with behavior dif-
ference of these aerosoles when they are used cloud
seeding.   There are 6 figures; and 18 references,
8 Soviet, 1 German, 1 U.K., 8 U.S.   The 5 most recent
U.S. and U.K. references are: S. Birstein, J. Meteorol.,
12, N 4, 324 (1955); V. Shaefer, J. Meteorol., 11,
417 (1954); E. Fournier, D. Albe, Quart. J. Roy.
Meteorol. Soc., 75, N 323, 1 (1949); B. Vonnegut,

Card 6/7

Study of Adsorption of Water Vapors on Ionic   77059
Crystals. Communication I. Methods and Results   SOV/62-59-12-3/43
of the Study of Water Vapor Adsorption on the
Crystals of Silver Iodide and Chloride

        J. Appl. Phys., 18, N 7, 593 (1947); W. Patrick,
        W. Kemper, J. Phys. Chem., 42, 369 (1938).

ASSOCIATION: Institute of Physical Chemistry of the Academy of
               Sciences, USSR (Institut fizicheskoy khimii Akademii
               nauk SSSR)

SUBMITTED: April 23, 1958

Card 7/7

78056
SOV/62-60-1-2/37

5.4400

AUTHORS: Moskvitin, N. N., Dubinin, M. M., Sarakhov, A. I.

TITLE: Investigation of Steam Adsorption on Ionic Crystals.
             Communication 2. Nonequilibrium Sorbtion of Water on
             Crystals of Lead Iodide

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
             nauk, 1960, Nr 1, pp 9-14 (USSR)

ABSTRACT: Nonequilibrium sorbtion isotherms of water vapor on
             PbI_2 crystals (specific surface about 0.2 m^2/g) in
             temperature range of 20 to $-20°$ were obtained and studied.
             The experiments were conducted according to the method
             described by the authors in Izv. AN SSSR. Otd. khim.
             n. 1959, 2080. The data obtained are shown in Figs. 1,
             2, 3, and 4. The following conclusions were made: The
             sorption isotherms, in the above intervals of pressure,
             are irreversible. The process of steam sorption on
             PbI_2 is of a long duration, especially at positive

Card 1/2

Investigation of Steam Adsorption on
Ionic Crystals. Communication 2.
Nonequilibrium Sorbtion of Water on
Crystals of Lead Iodide

78056
SOV/62-60-1-2/37

temperatures (equilibrium was not established during
35 days at 20°). No connection was found between the
absorption behavior of PbI_2 and the properties of its
aerosol particles in the seeding of supercooled clouds.
There are 4 figures; and 16 references, 9 U.S., 7
Soviet. The 5 most recent U.S. references are: E.
Ballou, C. Ross, J. Phys. Chem., 57, Nr 7, 653 (1953);
R. Beebe, G. Kington, M. Polley, W. Smith, J. Am.
Chem. Soc., 72, 40 (1950);J. Van Voorhis, R Graig,
F. Bartell, J. Phys. Chem., 61, 1513 (1957); S.
Birstein, J. Meteor., 12, Nr 4, 324 (1955); W. Patrick,
W. Kemper, J. Phys. Chem., 42, 369 (1938).

ASSOCIATION: Institute of Physical Chemistry of the Academy of
                 Sciences USSR (Institut fizicheskoy khimii Akademii
                 nauk SSSR)

SUBMITTED: April 23, 1958

Card 2/2

GYNOAZOV, A.M.; MOSKVITIN, S.S.

Distribution of some birds in the taiga zone of Western Siberia.
Ornitologiia no.7:71-75 '65.   (MIRA 18:10)

L 21790-66   EWT(m)/EPF(n)-2/EWA(d)/EWP(t)/EWA(b)   JD/WW/JG

ACC NR: AP6002914   SOURCE CODE: UR/0286/65/000/024/0074/0075

AUTHORS: Kotin, N. N.; Moskvitin, V. I.; Rozanov, N. N.; Nepomnyashchiy, I. V.;
Samson, Yu. U.; Smirnov, S. G.; Tsybul'skaya, Ye. D.

ORG: none

TITLE: An electrolyzer for producing high melting metals from molten mediums.
Class 40, No. 177085 /announced by State Scientific Research and Design Institute
of the Rare Metals Industry (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut redkometallicheskoy promyshlennosti)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 74-75.

TOPIC TAGS: electrolytic cell, electrolytic extraction, metal electrolytic
deposition, metal purification

ABSTRACT: This Author Certificate presents an electrolyzer for obtaining high
melting metals from molten mediums. The electrolyzer is in the form of an air-
tight chamber with a cutting element for the cathode precipitate. The chamber has
a cathode and a circular anode (see Fig. 1). The electrolyzer produces a dense
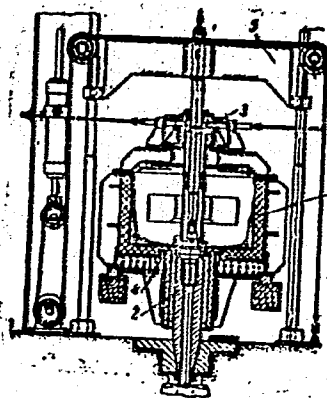cathode precipitate suitable for electric slag melting. The cathode of the

Card 1/2   UDC: 669.713.7.472

L 21790-66
ACC NR: AP6002914

Fig. 1. 1 - electrolyzer
chamber; 2 - die; 3 - shaft
of punch; 4 - cutter; 5 -
cross arm.

electrolyzer is a tubular cylinder mounted in the lower part of the electrolyzer.
A die is mounted in the cavity of the cathode cylinder and is used for pressing out
the cathode precipitate. The electrolyzer is provided with a device for pressing
out the cathode precipitate. This pressing device is in the form of a punch
fastened to a shaft. The shaft is connected to a cross arm which moves in a verti-
cal plane. The electrolyzer is also provided with a cutting element for cutting the
cathode precipitate. This cutter is mounted on the shaft of the punch and is
connected with the drive mechanism. Orig. art. has: 1 figure.
Card 2/2   SUB CODE:11, 09/SUBM DATE: 23May63

MOSKVITIN, V.S., inzh. (Moskva)

Local stability of angular sections of aluminum alloys. Rasch.-
prostr.konstr. no.7:233-250 '62.   (MIRA 15:4)
(Beams and girders)

S/779/62/000/008/006/006
A059/A126

AUTHOR: Moskvitin, V.S., Engineer (Moscow)

TITLE: Local strength of trough-shaped profiles made of aluminum alloys

SOURCE: Raschet prostranstvennykh konstruktsiy; sbornik statey, no. 8.
                 Moscow, 1962. 281 - 293

TEXT: In continuation of his earlier work [Mestnaya ustoychivost' ugol-
kovykh profiley iz alyuminiyevykh splavov (Local strength of angle shapes made
of aluminum alloys), Collection ed. by A.A. Umanskiy "Raschet protranstvennykh
konstruktsiy", vyp. 6, Gosstroyizdat, 1961], the author gives experimental data
on more complex, trough-shaped profiles, and suggests simple methods of calcu-
lating critical stresses and local strengths of profiles within and beyond the
limits of elasticity. Test methods used were the same as those described before.
On the basis of previous work and of the experimental data obtained, the criti-
cal stress was calculated from the equation

$$\sigma \text{ or } = \frac{\tau_s \, GJ_t}{J_r}\left(1 + \pi^2 \frac{E}{G} \cdot \frac{\tau_t}{\tau_0} \cdot \frac{J_\omega}{J_{cr}} \cdot \frac{1}{l^2}\right),$$

(13)

Card 1/2

Local strength of trough-shaped profiles ....

where $\tau_s = \dfrac{E_s}{E}$; $\tau_t = \dfrac{E_t}{E}$; $G = \dfrac{E}{2(1+\mu)}$. This equation holds for the buckling of a uniformly compressed, thin-walled rod with fixed axis of rotation. Here, G is the modulus of displacement, J_t the moment of inertia of buckling, J_r the polar moment of inertia with respect to the axis of rotation, J_ω the sectorial moment of inertia, 1 the half-wave length (equal to 2/3 of the sample length), E_s the secant modulus, and E_t the tangential modulus. Experimental as well as calculated results were compared with those obtained in accordance with the "Technical conditions for designing constructions made of aluminum alloys" [CH 113-60 (SN 113-60)] for the limiting values of overhang racks, wall heights of ordinary-type struts made of the alloys Д1-Т (D1-T) and Д16-Т (D16-T). The values obtained according to the above technical conditions were somewhat too low. B.I. Ivaniy, A.S. Vol'mir, and F. Bleykh are mentioned. There are 8 figures and 3 tables.

Card 2/2

IMMERMAN, A.G., kand. tekh. nauk; PYLIN, D.A., inzh.; MOSKVITIN, V..., inzh.

Testing automatic controllers spanning 36 .. ir... trb. ... .
3 ...l S '6..

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L 00769-67   EWT(m)/EWP(t)/ETI   IJP(c)   JH/JD

ACC NR: AT6022505

SOURCE CODE: UR/2779/65/000/010/0241/0260

AUTHOR: Moskvitin, V. S. (Candidate of technical sciences; Moscow)

ORG: None

TITLE: A practical method for calculating the localized stability of compressed rods made from aluminum alloys

SOURCE: Raschet prostranstvennykh konstruktsiy; sbornik statey, no. 10, 1965, 241-260

TOPIC TAGS: structural engineering, construction material, metal stress, structure stability, ALUMINUM ALLOY PROPERTY, FABRICATED STRUCTURAL METAL

ABSTRACT: The author uses experimental data modified by certain simplifying assumptions as the basis for a practical method of calculating and designing pressed structural profiles made from various grades of aluminum alloys. Approximate formulas and graphs are given for calculating critical stresses of localized stability loss for I beams, channel beams and girders of more complex shapes. Special formulas are also given for calculating angle irons and profiles with complex curves. The effect of knobs and flanges on localized stability of various profiles is considered. Examples are given illustrating application of the proposed method to specific design problems. The numerical results are compared with experimental data where possible and satisfactory agreement is observed. Orig. art. has: 10 figures, 1 table, 21 formulas.

SUB CODE: 13/   SUBM DATE: none/   ORIG REF: 009/   OTH REF: 011

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MOSKVITIN, V. V.

272T93

272T93

USSR/Physics - Elasticity Theory   Aug 52

"Residual Stresses and Strains at the Pole of a Thin-Shell Sphere," V. V. Moskvitin, Chair of Elasticity Theory

Vest Mos Univ, Ser Fizikomat i Yest Nauk, No 5, pp 57-61

Previously (ibid. No 8, Aug 1951) the author detd the residuals by taking into consideration the transition of the material beyond the elastic limit during load removal. Here he solves this problem for

the case where the compressibility of the material is taken into account. Received 6 Dec 1951.

Moskvitan V.V.

Moskvitin, V. V. Residual stresses and strains in a hollow thick-walled sphere. Vestnik Moskov. Univ. 7, no. 8, 57-61 (1952). (Russian)

A hollow thick-walled sphere of material is plastically stressed under slowly-increasing uniform internal pressure. Analysis based upon total-strain theory is given to determine the state of residual stress and strain following removal of the pressure. Numerical results are given for a typical example.

H. G. Hopkins (Sevenoaks).

I - F/T

USSR/Physics - Plastic Deformation   May/Jun 52

"Concerning Secondary Plastic Deformations," V. V. Moskvitin, Moscow

"Prikl Matemat i Mekh" Vol XVI, No 3, pp 323-330

Attempts to demonstrate a theorem concerning removal of load taking into account the transfer of material in the process of load removal beyond limits of elasticity in a certain region of the body (the region of secondary plastic deformation). Usually the problem concerning the detn of the residual stresses and strains is solved by the theorem of load removal as demonstrated by A. A. Il'yushin. This theorem assumes that in the process of load

removal the material does not again proceed beyond the limits of elasticity. This theorem restricts the class of problems that can be solved. Submitted 26 Jul 51.

214T93

MOSKVITIN, V. V.

MOSKVITIN, V.V.

PETROVSKIY, I.G.; VOVCHENKO, G.D.; SALISHCHEV, K.A.; SERGEYEV, E.M.;
MOSKVITIN, V.V.; SRETENSKIY, L.V.; GEL'FOND, A.D.; GOLUBEV, V.V.;
ALEKSANDROV, P.S.; SOBOLEV, S.L.; BAKHVALOV, S.B.; OGUBALOV, P.M.;
KREYNES, M.A.; MYASNIKOV, P.V.; ZHIDKOV, M.P.; GAL'PERN, S.A.;
ZHEGALKINA-SLUDSKAYA, M.A.

Vsevolod Aleksandrovich Kudriavtsev; obituary. Vest.Mosk.un. 8
no.12:129 D '53.
        (Kudriavtsev, Vsevolod Aleksandrovich, 1885-1953)   (MLRA 7:2)

Moskvitin, V. V.

15993*   (Elastoplastic Distortion of a Beam With Initial   62
Stresses.) Uprugo-plasticheskoe kruchenie sterzhnia s nach-
al'nymi napriazheniiami, V. V. Moskvitin. Moskovskogo Uni-
versiteta, Vestnik, Seriia Fiziko-Matematicheskikh i Estestven-
nykh Nauk, v. 4, no. 6, June 1954, p. 47-58.
Mathematical analysis of deformation and residual stresses.
Diagrams, graphs, tables. 3 ref.

USSR/Physics - Beams

FD-669

Card 1/1 : Pub. 129 - 4/25

Author : Moskvitin, V. V.

Title : Problem of the elastic-plastic bending of a beam

Periodical : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, Vol. 9, No 5, 33-40, May 1954

Abstract : Rederives and discusses here the solution to the fairly easy problem of the simple elastic-plastic bending of beam made of incompressible material under the assumption that only the axial stress, sigma, differs from zero; this solution was found by A. A. Il'yushin (Plastichnost', part 1, State technical Press, 1948).

Institution : Chair of Elasticity theory

Submitted : January 5, 1954

USSR/Physics - Plasticity

FD-3089

Card 1/1   Pub. 85 - 4/16

Author   : Moskvitin, V. V. (Moscow)

Title   : Elastic plastic deformations of bodies under repeated loadings

Periodical : Prikl. mat. i mekh., 19, Nov-Dec 1955, 714-724

Abstract   : On the basis of the theory of small elastic plastic deformations the
               author in the present work constructs equations approximately de-
               scribing the strains in bodies under frequent loadings. As an example
               he considers the problem of purely elastic plastic bending of a beam
               under cyclic loads and the problem of repeated loading of an empty
               sphere by internal pressure. Four references: e.g. author's "Problem
               of elastic plastic bending of beam," Vestnik Moskov. universiteta, No
               5, 1954.

Institution :

Submitted   : August 12, 1954

MOSKVITIN, V.V.

Repeated elastic-plastic torsion of rods.   Vest.Mosk.un. 11 no.3:
31-40 Mr '56.   (MLRA 9:8)

1. Kafedra teorii uprugosti.
          (Torsion) (Elastic rods and wires)

MOSKVITIN, V.V. (Moskva)

Longitudinal vibrations of elastic plastic systems having a finite number of degrees of freedom. Izv.AN SSSR.Otd.tekh.nauk no.2:77-84 F '57.
(MLRA 10:5)

(Elastic solids)

MOSKVITIN, V.V.

Elastic-plastic vibrations of flat trusses. Vest.Mosk.un.Ser.mat.,
mekh., astron., fiz., khim. 12 no.3:13-22 '57.   (MIRA 11:3)

1.Kafedra teorii uprugosti Moskovskogo gosudarstvennogo universiteta.
(Trusses--Vibration)

16(1) 16.7300

AUTHOR: Moskvitin, V.V.   SOV/155-58-4-18/34

TITLE: Torsion of Elasto-Plastic Bars Under Cyclic Stresses
                (Krucheniye uprugo-plasticheskikh sterzhney pri tsiklicheskikh
                nagruzheniyakh)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye
                nauki, 1958, Nr 4, pp 109 - 118 (USSR)

ABSTRACT: Let a prismatic bar of arbitrary cross section or a bar with
                variable circular cross section be stressed at first by a
                torsional moment M' and after the removal of the load by the
                torsional moment M'' .
                  Theorem :—It is $\tau''_{xz} = \tau'_{xz} - \bar{\tau}_{xz}, \ldots, \ u'' = u' - \bar{u}, \ldots,$

                $\theta'' = \theta' - \bar{\theta}$, where $\tau''_{xz}, \ldots, \ u'', \ldots, \ \theta''$ are the stresses,
                displacements and torsions caused by M'', and $\tau'_{xz}, \ldots, u', \ldots, \theta'$
                those caused by M', while $\bar{\tau}_{xz}, \ldots, \bar{u}, \ldots, \bar{\theta}$ correspond to
                a stress by $\bar{M} = M' - M''$, if thereby the stretching-strain
                limit of the material is enlarged for $(\mu_2 + 1)$ times.

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Torsion of Elasto-Plastic Bars Under Cyclic Stresses   SOV/155-58-4-18/34

The parameter μ_2 characterizes the variation of the elasto-plastic properties of the material and can be determined experimentally or according to a formula of the author $\underline{/}$ Ref 2 $\underline{/}$ from the remaining deformations. The theorem is extended to multiply repreated stresses by torsional moments so that it holds e.g.

$$\tau_{xz}^{(n)} = \tau_{xz}' - \sum_{i=1,2,3}^{n-1} \overline{\tau}_{xz}^{(i)} \qquad (n = 2,3,4,\ldots)$$

Finally the author discusses the question which limit-state the material is approaching if the number of stresses increases. Three different cases of behavior are distinguished and it is conjectured that for deformations near the stretching-strain limit the limit-state of every material will be an elastic one. A.A. Il'yushin is mentioned in the paper.

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Torsion of Elasto-Plastic Bars Under Cyclic Stresses   SOV/155-58-4-18/34

There are 3 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: May 25, 1958

Card 3/3

5

16(1)
AUTHOR: Moskvitin, V.V.   SOV/55-58-5-5/34

TITLE: Impulsive Motions of Elasto-Plastic Systems With a Bounded
               Number of Degrees of Freedom (Impul'sivnyye dvizheniya uprugo-
               plasticheskikh sistem s ogranichennym chislom stepeney svo-
               body)

ABSTRACT: In § 1 the author considers the torsional oscillations of a
               shaft of vanishing weight with n superimposed disks under in-
               fluence of arbitrary external forces and plastic deformation.
               § 2 deals with the elasto-plastic oscillations of a bar with
               discreetly distributed masses. The support conditions of the
               shaft and of the bar can be arbitrary (in particular free
               resting, rigid fixing). The linearization method proposed by
               the author in [Ref 1] permits to describe the motions under
               load and unloading by closed systems of differential equations,
               the solutions of which are constructed piecewise under con-
               sideration of corresponding boundary conditions.

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Impulsive Motions of Elasto-Plastic Systems With   SOV/55-58-5-5/34
a Bounded Number of Degrees of Freedom

There are 3 figures, and 1 Soviet reference.

ASSOCIATION: Kafedra teorii uprugosti (Chair of Elasticity Theory)

SUBMITTED: June 5, 1958

Card 2/2

SOV/24-58-7-4/36

AUTHOR: Moskvitin, V.V. (Moscow)

TITLE: Static Elasto-plastic Deformations Due to Repeated
            Cyclic Loads (Staticheskiye uprugo-plasticheskiye defor-
            matsii pri mnogokratnykh tsiklicheskikh nagruzheniyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
            nauk, 1958, Nr 7, pp 24 - 32 (USSR)

ABSTRACT: The paper deals with the effects of repeated cyclically-
            varying loads in the cases where finite regions of plastic
            deformation are produced, e.g. as in the case of large
            stress concentrations. The importance of the problem
            derives from the fact that in such cases the critical
            limiting conditions (collapse, appearance of cracks, etc.)
            develop much earlier, i.e. after a smaller number of
            cycles than in the case of purely elastic fatigue.
            It is assumed that the behaviour of the material under the
            conditions of stressing, unloading and re-stressing in the
            opposite sense is fully known.
            Figure 1 shows a typical variation of the elasto-plastic
            properties of metals as a function of the number of cycles
            of loading. It gives the experimental results of torsion
            of a thin duralumin tube (τ is the shearing stress

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Static Elasto-plastic Deformations Due to Repeated Cyclic Loads

in kg/mm^2 and γ is the corresponding strain in %). The torque was varied in such a way that in each cycle $-\tau_0 \leqslant \tau \leqslant \tau_0$ (symmetric cycle). The first two cycles and the last one (25-th) are drawn fully in the figure and for the remaining cycles only the linear part of the relation between τ and γ is shown. It is seen from the graph that, as the number of cycles increases, the plastic component $\gamma_n^{(p)}$ of the total strain γ_n diminishes appreciably and, e.g. after 25 cycles it is only just a little over $-/5$ of the corresponding value of the plastic strain in the first cycle. With further increase in the number of cycles the plastic strain will continue to grow smaller although not so rapidly as during the initial cycles and, eventually, it tends to zero, as shown in Figure 2, where the continuous lines indicate the experimental data and dotted lines are extrapolated on the basis of Refs 1 and 2.
Thus, after N symmetric cycles of loading with the amplitude of stress τ_0 the material behaves elastically, the

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Static Elasto-plastic Deformations Due to Repeated Cyclic Loads

yield stress increases (Ref 2) ultimately becoming greater than τ_0. This takes place irrespectively of the magnitude of τ_0, though the shape of the curve $\gamma_n^{(p)}(n)$ as well as the number N of the cycles after which the plastic strain vanishes depends on τ_0 and for higher values of τ_c the appropriate value of N will be much larger.

Plastic components of deformation corresponding to the negative values of the load tend to zero after only a few cycles (bottom curve in Figure 2).

Under non-symmetric type of loading the behaviour of metals is very much the same except for one important difference that the plastic component of the strain does not vanish after some number of cycles but tends to a definite limit whose magnitude depends upon the non-symmetry of the cycle.

The presence of some form of cyclic variation of the plastic component of the strain appears thus to be the

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Static Elasto-plastic Deformations Due to Repeated Cyclic Loads

essential condition for the diminution of the plastic
deformation with the increased number of cycles which in
consequence means a change in mechanical properties of
materials.
Tests carried out on cylindrical specimens in tension-
compression show an exactly similar state of affairs.
On the basis of the theory of small elasto-plastic
deformations (Ref 3) the theoretical equations are
developed to either predict the number of half-cycles m
needed to cancel the plastic component of the strain in
the material which is capable of strain-hardening (this
is assumed to be of linear nature) or to find the magnitude
of the plastic strain for any particular number of half-
cycles. The author then gives some examples:
A) Cyclic elasto-plastic bending of beams.
Figure 3 represents the relation $H_m = M_m h/2\sigma_s J$ where

M_m is the bending moment after the m-th half-cycle, h
is the depth of the cross-section of the beam. J is the
second moment of its area and σ_s is the yield stress of

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Static Elasto-plastic Deformations Due to Repeated Cyclic Loads

the material. Curve 1 is for $\sigma_b/\sigma_s = 1.45$ and Curve 2 for $\sigma_b/\sigma_s = 1.3$. σ_b being the maximum stress in the section. The interpretation of the figure is as follows: if under the first loading by a bending moment H_1 a certain value of stress σ_b is produced in the upper layers of the beam, then the same stress will be produced after n symmetric cycles under the action of a bending moment H_m which is related to H_1 by Eq (3.5).

Qualitatively both curves resemble the curve of the Wöhler theory of fatigue.

Figure 4 represents Eq (3.5) for various values of the coefficient of strain hardening λ. For $H_1 \geqslant 1.7$ it may be taken that $M_m = M_1 - 1/2 \lambda M_s$ where M_s is that magnitude of the bending moment which just produces a plastic deformation in the first cycle;

B) elasto-plastic torsion of bars with torques varying in sign. In this case, the results are very similar to those given in the preceding case and differ only in the

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Static Elasto-plastic Deformations Due to Repeated Cyclic Loads

value of the coefficients in the corresponding equations;
C) repeated tension-compression of flat strips with
circular holes (Figure 5). No exact solution of the
problem is given. The author discusses two cases:
1) when the axial load p is always positive but changes
in magnitude, 2) when the load changes from positive to
negative in a symmetric manner.
In the first case, if on being loaded for the first time
there are plastic deformations produced in the shaded
areas F round points A and B, then in the process
of unloading the secondary plastic deformations will be
restricted only to doubly shaded regions f . Assuming
that both F and f are known, it would be possible to
introduce the stress function $\Phi(xy)$ whose differential
equation is given by Eq (3.9). By employing double
harmonic series the problem may be solved by successive
approximations, as shown in Ref 5.
In the second case it may be necessary during compression
to support the strip against buckling. As before, the

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